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LABELING MACHINE  
[RABERINGU MASHIN]

SUSUMU IIJIMA

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INVENTOR(S) (72) : SUSUMU IIJIMA

APPLICANT(S) (71) : SUSUMU IIJIMA

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Specification

1. Title of the Invention

Labeling Machine

2. Claims

(1). A labeling machine, characterized in that it comprises of a drum (1) that absorbs a label (3) by a negative pressure and rotates; a pasting mechanism (7) that pastes a paste on a supply mechanism (8), which supplies the label (3) to the drum (1), and the label (3); and holders (4) that hold a container (2) being supplied, move as much as a fixed section on the outer periphery of the drum (1) while pressing the container (2) against the drum surface and drawing a circular arc in a state in which a fixed gap from the drum surface is held, separate from the drum (1) and the container (2), move to the side opposite to the drum (1), and circulate.

(2). The labeling machine as cited in Claim 1, characterized in that the holder (4) has a holding mechanism connected by links (46).

(3). The labeling machine as cited in Claim 1, characterized in that it has a holding mechanism comprising of a shaft (49) that rotates by synchronizing with the shaft of the

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<sup>1</sup> Numbers in the margin indicate pagination in the foreign text.

drum (1); arms (47) axially supported to a stand (48) mounted at the shaft (49); and the holders (4) mounted at the arms (47).

### 3. Detailed Description of the Invention

The present invention relates to a labeling machine that has a holding mechanism, which holds a container (2) in a fixed section at the outer periphery of a drum (1) and moves on the outer periphery of the drum while drawing a circular arc by pressing the container (2) against the drum surface, and pastes a label on the cylindrical light

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unstable container made of a plastic. In conventional labeling machines, as shown in Figure 1, a sponge (91) is installed in a circular arc shape at the outer periphery of a drum (1), a cylindrical container (2) is fed between the sponge (91) and the drum (1), the container (2) is sandwiched by the sponge (91) and the drum (1), and the rotation of the drum is transferred to the container (2) to rotate the container (2), moving the container so that a circular arc is drawn. At that time, a label (3) absorbed and pasted on the drum (1) is contacted with the container (2) by the rotation of the drum (1), wound up on the container (2) by the adhesive strength of the paste, and pasted. However, in this case, the container (2) has been normally pasted only when it is heavy and stable. For example, in a cylindrical container made of a plastic with a high height into

which contents are not introduced, when the container (2) passes through between the drum (1) and the sponge (91), since the container (2) is light and unstable, its upright posture cannot be held but is stable and tends to be tilted, shifting the container (2). For this reason, in case the label (3) is wound on the entire periphery of the container (2), since a difference is generated in the height of the run-into part of the tip and the rear end of the label (3), the seam of the label (3) is quick to tend to shift vertically. Therefore, in the conventional method, it was impossible to precisely paste the label (3) on a cylindrical light container. The present invention can solve this problem.

As the characteristic of the labeling machine of the present invention, holders (4) move while drawing a circular arc in a state in which the outer periphery of the drum (1) is held at a fixed gap from the drum (1), press the container (2) against the drum (1), precisely hold the posture of the container (2) in an upright state, and paste the label (3) while rotating and moving the container. Therefore, the label can be precisely pasted without a shift of the seam of the tip and the rear end of the label (3).

In addition, the holders (4) hold the side surfaces of the container (2) by a freely rotary roller (41) as shown in Figure 2 or by a belt (42) as shown in Figure 3 and presses the

container (2) against the drum (1). Figure 4 shows the case where the top and bottom of the container is held.

Next, the operation of the labeling machine of the present invention into which the above mechanism is assembled will be described based on Figures 5 and 6. Figure 5 shows the labeling machine in which the holding mechanism part is constituted by links, and Figure 6 shows the labeling machine in which the holding mechanism part is constituted by a turntable. The containers (1) are arranged and conveyed by a conveyor (51) and divided at a fixed interval by a spiral rotary guide (6). The containers are held by the holders (4), transported to the drum (1), and pressed against the drum (1), starting the rotation. At the same time, the supply of the containers (2) is electrically confirmed, and the labels (3) are supplied to the drum (1) from a label supply mechanism (8) in accordance with the number of container (2). The label (3), which is absorbed to the drum (1) by a negative pressure and transported, is pasted by a pasting mechanism (7) and transported to a pasting part. The label (3) transported runs into the container (2). At that time, since the negative pressure that has adsorbed the label (3) to the drum (2) is cut off, the label (3) is pasted on the container (2) by the adhesive strength of the paste and wound on the container (2) along with the rotation of the container (2). After the completion of the winding, the

container (2) is separated from the drum (1) by the holders (4) and fed onto the conveyor (52). The containers (2) on the conveyor (52) are rotated and finished by a finishing part (9).

In the holding mechanism of the labeling machine of Figure 5, as shown in Figure 7, the rollers (45) mounted at the lower ends of the holders (4) pass through grooves (44) installed at the outer periphery of the drum (1), so that the holders (4) draw a circular arc while holding a fixed gap from and the drum (1). In addition, in the holding mechanism of the labeling machine of Figure 6, as shown in Figure 8, a cam follower (45) mounted at the arm (47) axially supported to a turntable (48) passes through the groove (44) installed under the turntable (48), and the holders (4) draw a circular arc while holding a fixed gap from the drum (1) when the holders pass through a pasting part.

The labeling machine with the above constitution is very effective for pasting labels on cylindrical lightweight containers, and the containers are completely

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held and stably moved in an upright state. In addition, until the labels are wound up on the entire parts of the containers, the containers are in a contact state with the drum, and while the labels are wound up on the moving containers, since the rear ends of the labels are adsorbed to the drum, the labels can be

precisely pasted without a shift. Moreover, since the labels are pasted in a stable state in which the containers are completely held, the labels can be pasted at high speed.

#### 4. Brief Description of the Figures

Figure 1 is a plan view showing a pasting part of a conventional labeling machine.

Figure 2 is a plan view showing a holder that is constituted by a roller.

Figure 3 is a plan view showing a holder that is constituted by a belt.

Figure 4 is a side view showing a holder that is vertically held.

Figure 5 is a plan view showing the labeling machine having a holding mechanism consisting of links.

Figure 6 is a plan view showing the labeling machine having a holding mechanism of a turntable.

Figure 7 is a side view showing the holding mechanism consisting of links.

Figure 8 is a side view showing the holding mechanism of a turntable.

1 is a drum, 2 is a container, 3 is a label, 4 is a holder, 46 is a link, 47 is an arm, 5 is a conveyor, 6 is a rotary guide, 7 is a pasting mechanism, 8 is a label supply mechanism, 9 is a finishing part, 91 is a sponge

Figure 1

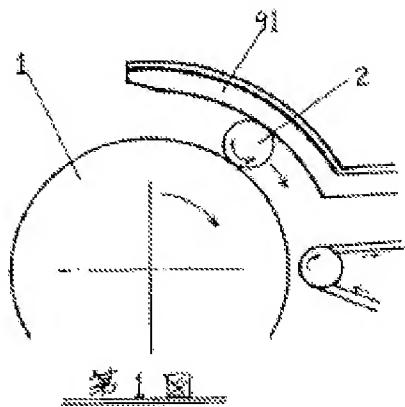


Figure 2

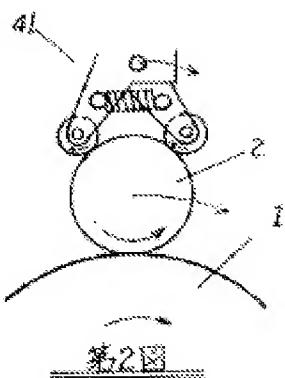


Figure 3

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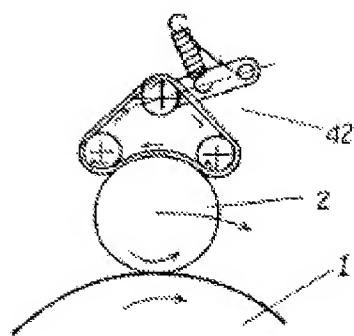
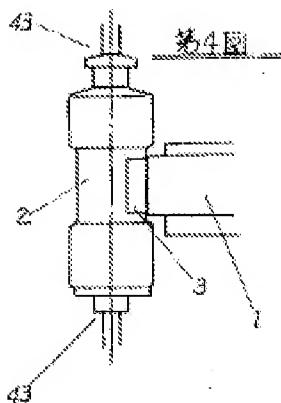


Figure 4



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Figure 5

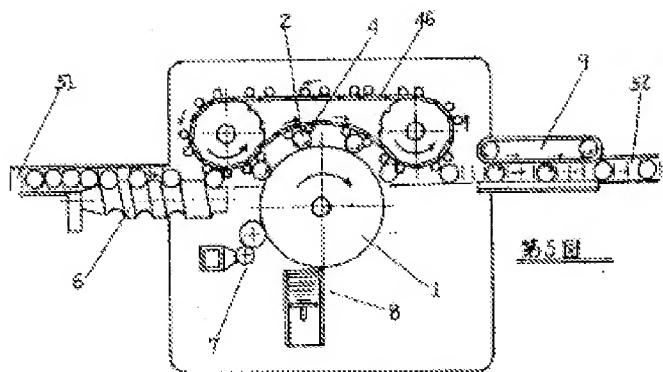


Figure 6

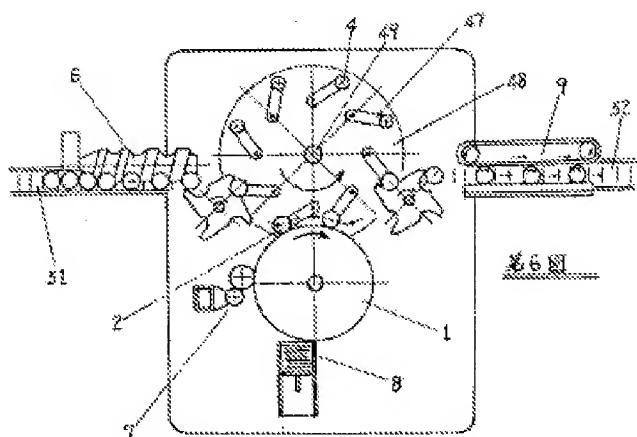


Figure 7

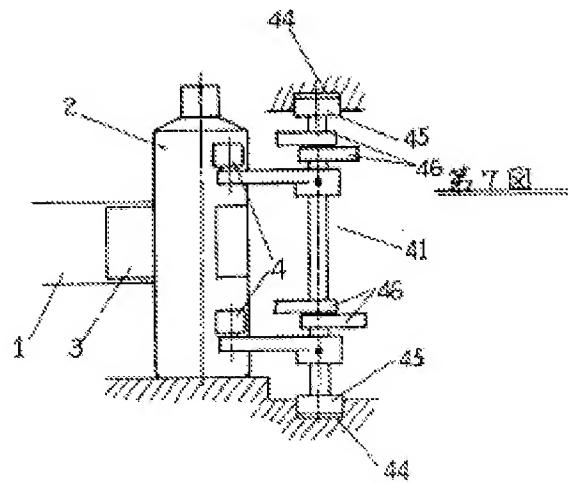


Figure 8

